

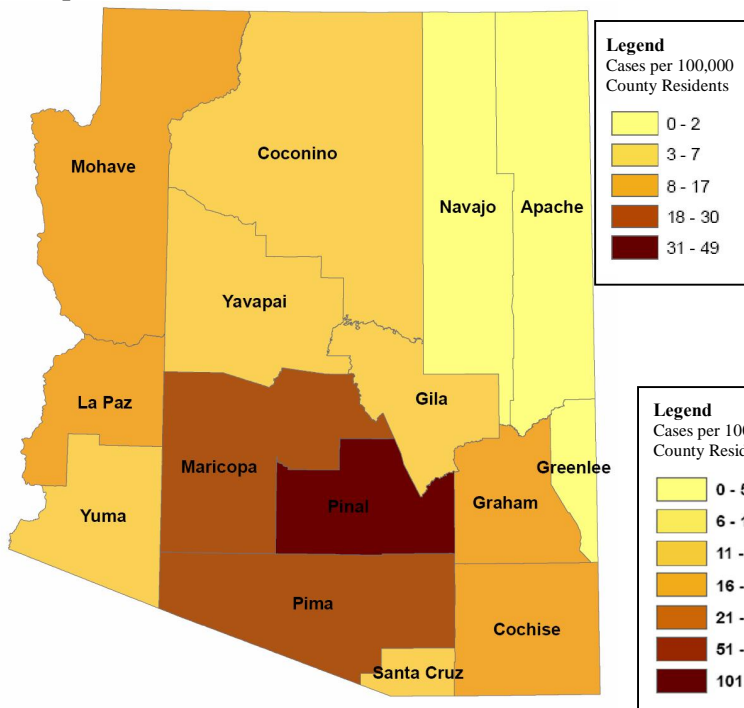
**Summary:**

For the year 2007, a total of 4871 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. 446 cases were reported for the month of January 2008 while 528 cases were reported for the month of December 2007.

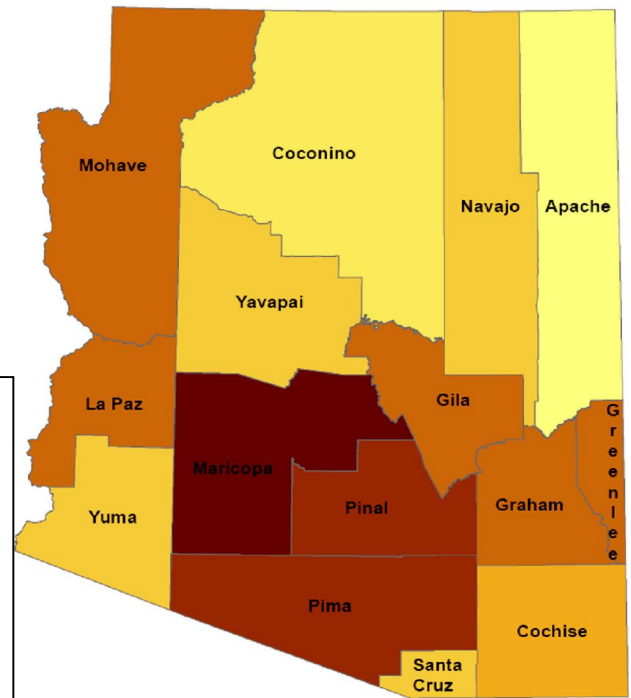
Data in this report are provisional and may change as more reports are received.

**Valley Fever Activity by County:**

**Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)**



**Map 2. Valley Fever Incidence, 2006**



**Table 1. Valley Fever Cases by County**

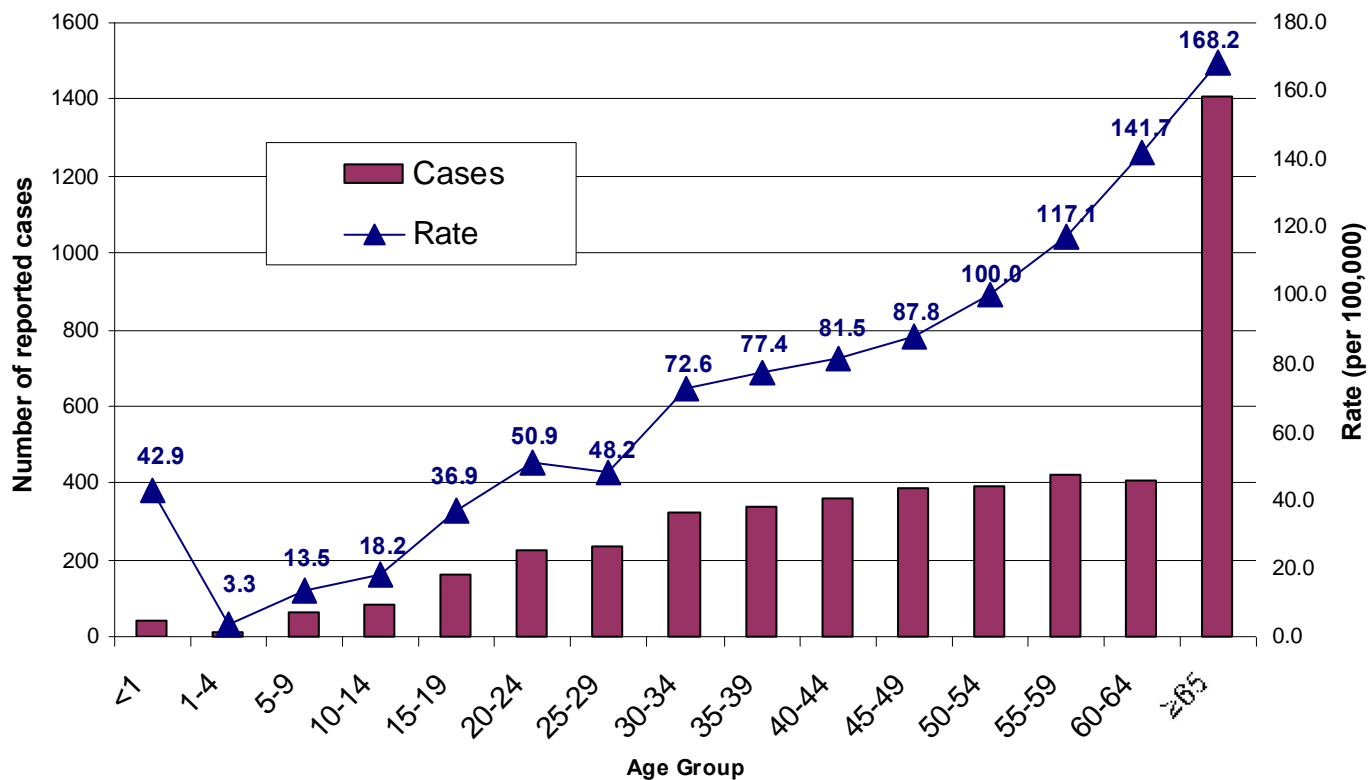
COUNTY	DEC 2007	JAN 2008	2007
APACHE	0	0	5
COCHISE	4	2	33
COCONINO	1	0	13
GILA	0	1	14
GRAHAM	4	3	24
GREENLEE	0	0	2
LA PAZ	0	0	16
MARICOPA	364	319	3500
MOHAVE	2	1	50
NAVAJO	2	2	11
PIMA	129	97	897
PINAL	21	20	258
SANTA CRUZ	0	1	7
YAVAPAI	1	0	26
YUMA	0	0	13
<b>TOTAL</b>	<b>528</b>	<b>446</b>	<b>4869*</b>

For both December 2007 and January 2008, nine counties reported cases of valley fever. Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

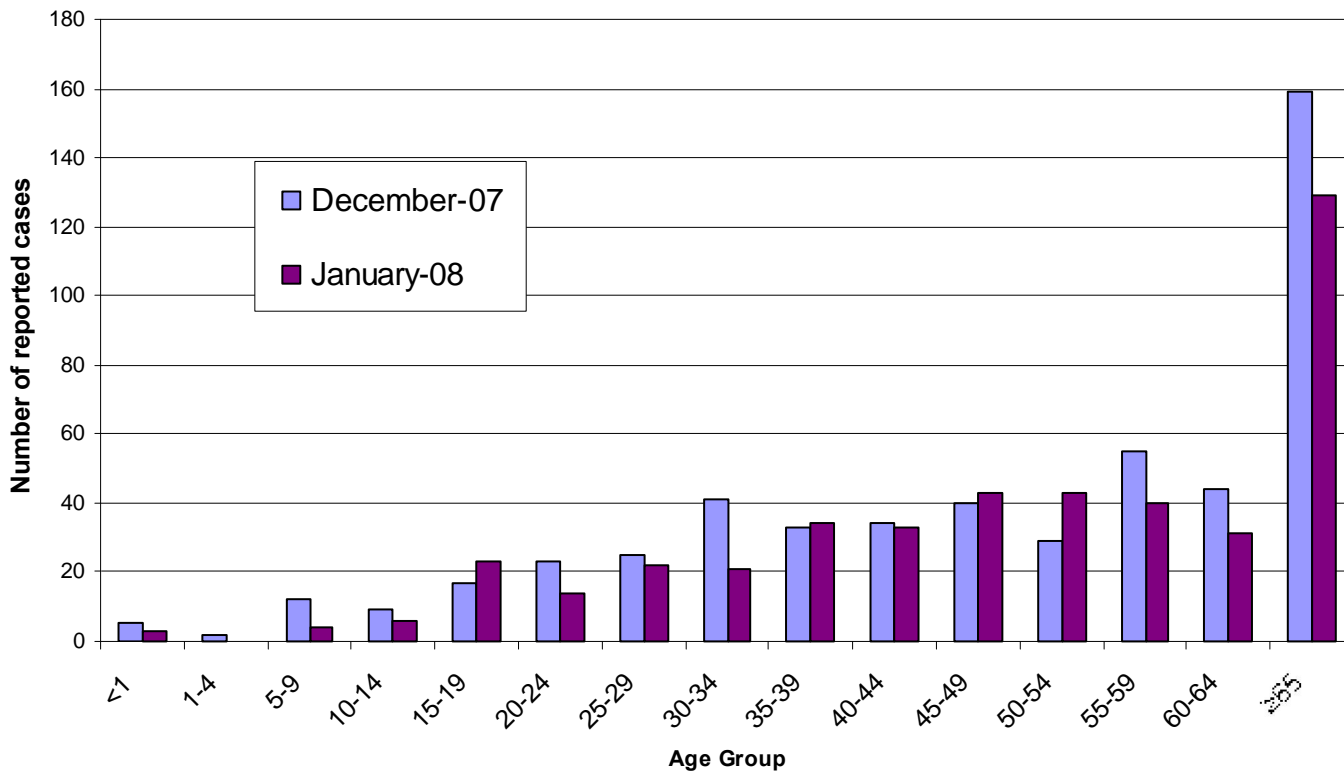
\*For the year 2007, two cases were unable to be classified by county.

## Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, 2007



Graph 2. Valley Fever Cases by Age Group, Dec 2007 and Jan 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 50.8 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department.

**Table 2. Race and Ethnicity of Valley Fever Cases compared to Arizona Demographics**

Race	Dec 2007 (n=153)	Jan 2008 (n=162)	2007 (n=1861)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	4 (2.6%)	9 (5.6%)	89 (4.8%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	4 (2.6%)	3 (1.8%)	51 (2.7%)	169,780 (2.6%)
Black/African- American	6 (3.9%)	7 (4.3%)	136 (7.3%)	253,477 (3.9%)
White	124 (81.1%)	125 (77.2%)	1429 (76.8%)	3,872,764 (60.2%)**
Other	15 (9.8%)	18 (11.1%)	156 (8.4%)	—

For the year 2007, only 38.2% (1861/4871) of the valley fever cases reported to the state health department contain information about race and ethnicity. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

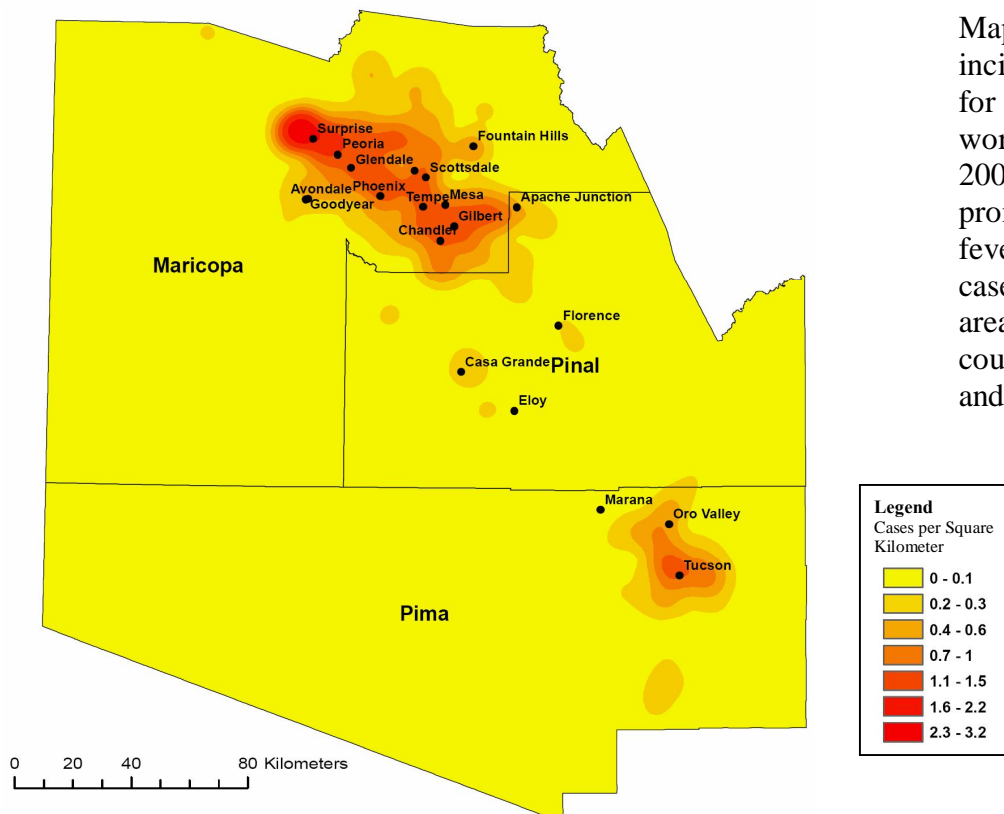
Ethnicity	Dec 2007 (n=475)	Jan 2008 (n=402)	2007 (n=4343)	2007 Demo (n=6,432,007)
Hispanic	24 (5.1%)	18 (4.5%)	268 (6.2%)	1,798,222 (28.0%)
Not Hispanic	61 (12.8%)	66 (16.4%)	835 (19.2%)	4,633,785 (72.0%)
Unknown	390 (82.1%)	318 (79.1%)	3240 (74.6%)	—

\*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics  
\*\*For 2007 demographics for the state of Arizona, white means white non-Hispanic.

### Areas with Valley Fever Activity:

#### Map 3.

#### Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



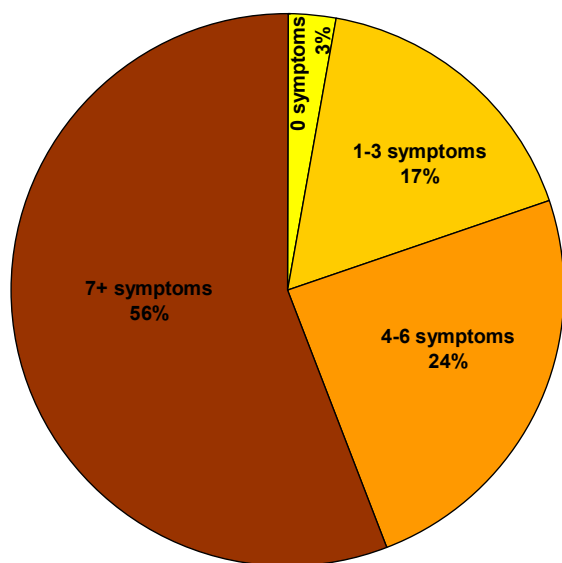
Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in urban areas, most notably in the counties of Maricopa, Pinal, and Pima.

## Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate the valley fever epidemic. Our aim is to interview every 10<sup>th</sup> valley fever case that is reported. So far we have interviewed 401 cases. This report highlights some of the major findings of this project.

### Symptoms and Pre-existing Conditions:

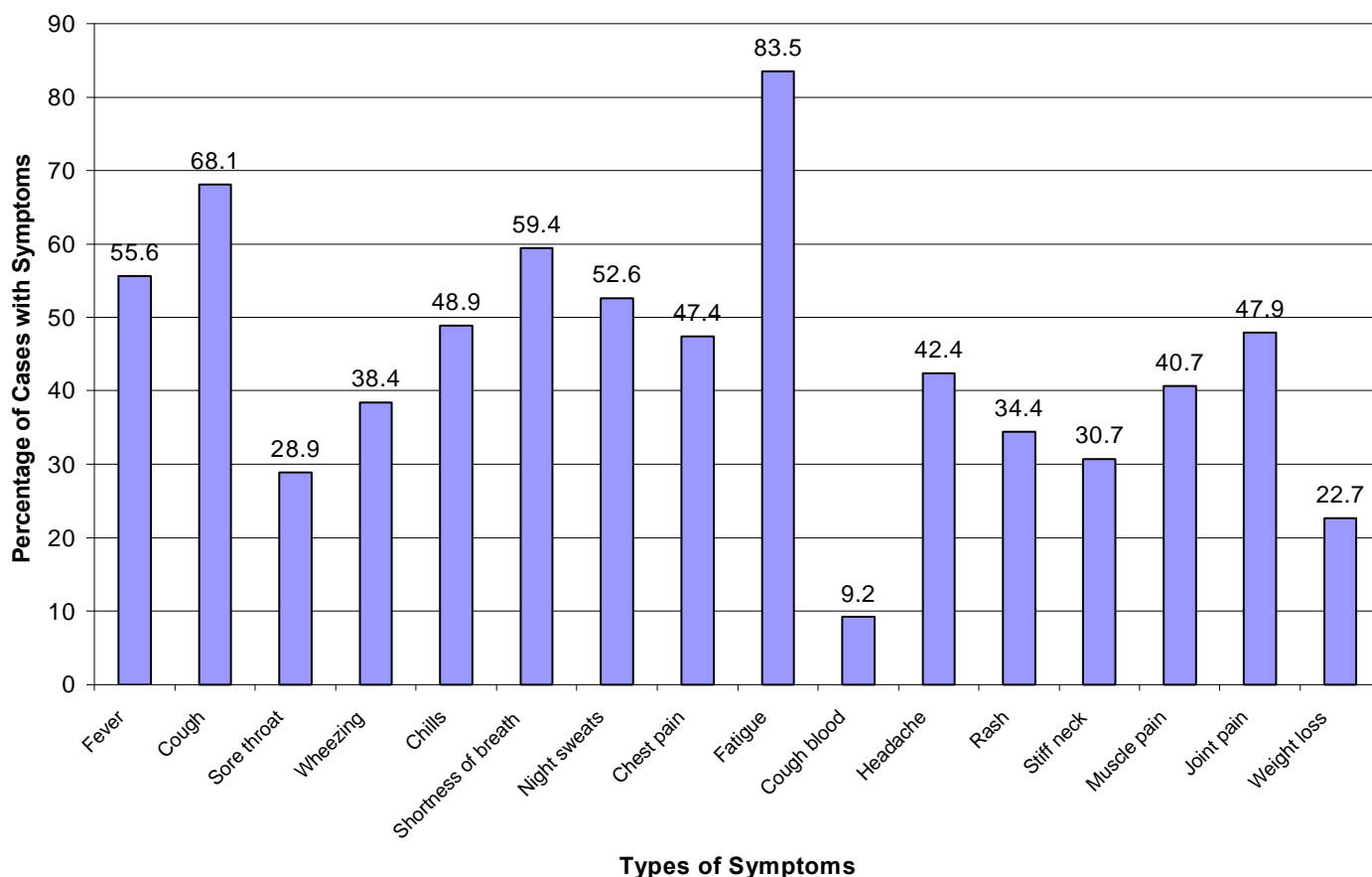
**Graph 3. Distribution of Symptoms in Valley Fever Cases\***



As shown in Graph 3, 56% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases reporting some of the most common symptoms of valley fever are shown below in Graph 4. 83.5% had fatigue and 68.1% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

\*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

**Graph 4. Common Symptoms of Valley Fever Cases\***



### Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 41.9% of patients reported going to the emergency room at least once over the course of their illness, and 40.1% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 51.3 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 28.6% of patients saw their doctor more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10.7% of patients interviewed had been told that they had valley fever before. 45.4% of patients were told that they had pneumonia and 56.4% were treated with antibiotics. 58.4% of patients were treated with antifungals.

**Table 3.**  
Location where Cases First Sought  
Treatment for Valley Fever

Location	Count (n=401)
Emergency room	90 (22.4%)
Primary care physician	222 (55.4%)
Urgent Care	49 (12.2%)
Other	20 (5.0%)
Unknown	20 (5.0%)

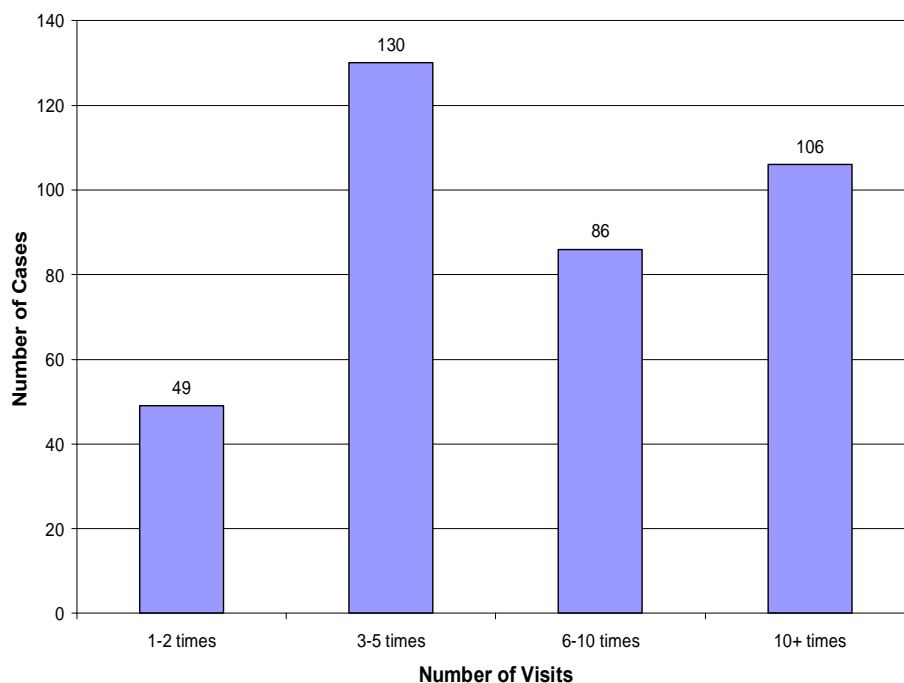
**Table 4.**  
Length of Antibiotic Treatment

Length of treatment	Count (n=241)
Less than 1 week	56 (23.2%)
1-2 weeks	90 (37.3%)
3-4 weeks	36 (14.9%)
1-2 months	13 (5.4%)
Greater than 2 months	17 (7.1%)
Unknown	29 (12.0%)

**Table 5.**  
Specifics of Healthcare Visits

Healthcare Visit (n=401)	Yes	No	Unknown
Visited the emergency room for illness	168 (41.9%)	214 (53.4%)	19 (4.7%)
Hospitalized overnight for illness	161 (40.1%)	228 (56.9%)	12 (3.0%)
Chest x-ray performed by provider	360 (89.8%)	25 (6.2%)	16 (4.0%)
Provider informed patient of pneumonia	182 (45.4%)	195 (48.6%)	24 (6.0%)
Patient knew of diagnosis before contacted by ADHS	312 (77.8%)	57 (14.2%)	32 (8.0%)
Patient asked provider to test for valley fever	63 (15.7%)	324 (80.8%)	14 (3.5%)
Provider prescribed antibiotic for illness	226 (56.4%)	122 (30.4%)	53 (13.2%)
Provider prescribed antifungal for illness	234 (58.4%)	145 (36.2%)	22 (5.5%)

**Graph 5.**  
Number of Times Valley Fever Cases Visited a Healthcare Provider over the  
Course of Illness



### ***Impact of Valley Fever and Exposures:***

At the time of the interview, individuals reported that the average length of their symptoms was 202 days (median = 124) (Table 6). At the time of the interview, 55.1% of the patients had not yet recovered from their symptoms of valley fever. Of those that have not yet recovered, the average length of symptom duration was 291.5 days (median = 167). 47.4% of the cases interviewed did not have a paid job or business and 12.0% were attending school when their illnesses began. Of those who had jobs, 74.2% missed work due to their illnesses, and 60.4% of those who were attending school missed school due to their illnesses. 74.6% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was almost three months (86 days). 49.6% said they were exposed to dust through their work or daily activities. Most of the cases (73.3%) said that they spent at least 2 hours a week outdoors (Table 7). 54.4% of people diagnosed with valley fever said that they lived within one mile of construction.

**Table 6.**  
**Symptom Duration and Number of Days Lost for Valley Fever Cases**

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered	139	68.7	42
Symptom duration (days) for those not yet recovered	207*	291.5	167
Symptom duration (days) for both recovered and not yet recovered	346	202.0	124
Number of days missed from work	136	33.2	14
Number of days missed from school	28	15.6	8
Number of days missed from daily activities	311	86.0	45

\*221 cases had not yet recovered from their symptoms. Only 207 cases had complete data about symptom duration.

### ***Demographics and Valley Fever Awareness:***

Although the average number of years lived in Arizona at the time of diagnosis was 17.3 years (Table 9), 54.6% lived in Arizona for less than 15 years (Graph 6). Our data support the hypothesis that those who are newer to the Arizona area are more susceptible to acquiring valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in getting infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 51.5 years old, which is comparable to the average age of reported cases in 2007 (50.8 years old).

**Table 7.**  
**Length of Time Spent Outdoors for Valley Fever Cases**

Length of Time/Week	Count (n=401)
<2 hrs	47 (11.7%)
2-20 hrs	195 (48.6%)
20-40 hrs	69 (17.2%)
>40 hrs	30 (7.5%)
Unknown	60 (15.0%)

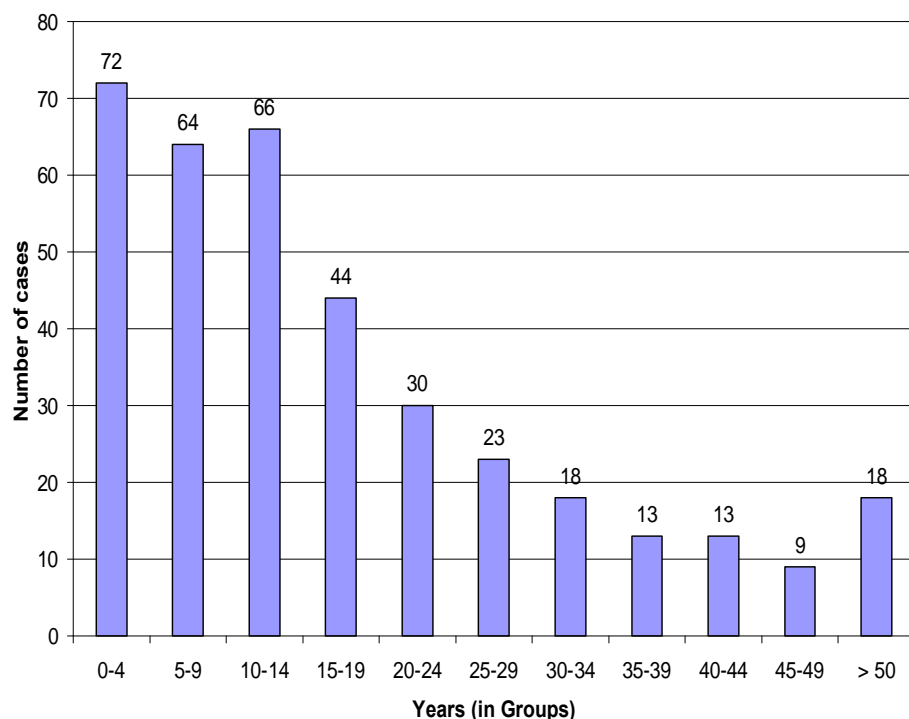
**Table 8.**  
**Dust Exposures for Valley Fever Cases**

Exposed	Count (n=226)
Constantly	40 (17.7%)
Intermittently/Sometimes	140 (61.9%)
Rarely	46 (20.4%)

**Table 9.**  
**Years Lived in Arizona & Average Age of Cases Interviewed**

Demographics	n	Mean	Median
Number of years lived in Arizona	369	17.3	13
Age of cases interviewed	400	51.5	53

**Graph 6.**  
**Length of Time that Valley Fever Cases Lived in Arizona**



**Table 10.**  
**Race and Ethnicity of Valley Fever Cases compared to State Demographics**

Race	Cases Inter- viewed (n=401)	2007 (n=1861)	2007 Demo* (n=6,432,007)
American Indian/Alaska Native	10 (2.5%)	89 (4.8%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	18*** (4.5%)	51 (2.7%)	169,780 (2.6%)
Black/African-American	27 (6.7%)	136 (7.3%)	253,477 (3.9%)
White	313 (78.1%)	1429 (76.8%)	3,872,764 (60.2%)**
Other	28 (7.0%)	156 (8.4%)	—
Unknown	5 (1.2%)	—	—

Ethnicity	Cases Interviewed (n=401)	2007 (n=4343)	2007 Demo (n=6,432,007)
Hispanic	48 (12.0%)	268 (6.2%)	1,798,222 (28.0%)
Not Hispanic	343 (85.5%)	835 (19.2%)	4,633,785 (72.0%)
Unknown	10 (2.5%)	3240 (74.6%)	—

In Table 10, we see that only 2.5% of cases interviewed during our enhanced surveillance were American Indians compared to the 4.8% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies in obtaining contact information so that we can interview more American Indians. Although successful in interviewing Asian valley fever cases, we may want to interview more Filipino cases because previous studies suggest that Filipinos are at a higher risk of severe infection from valley fever. 89.5% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 81.8% of the Arizonan population is insured (U.S. 2000 Census Data). 64.8% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 5.4% learned about valley fever from their healthcare providers. At the time of the interview, 20.2% of cases did not know how the disease is contracted.

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\*\*For 2007 state demographics, white means white non-Hispanic.  
\*\*\* 2 Filipinos

Further analysis will be done as we complete more interviews and receive more reports.